

A NEW *PHEBALIUM* (RUTACEAE) ENDEMIC TO KANGAROO ISLAND

D.A. Cooke

South Australian Department of Agriculture,
G.P.O. Box 1671, Adelaide, South Australia 5001

Abstract

Phebalium equestre is described and illustrated; it is endemic to eastern Kangaroo Island and is regarded as endangered.

Populations of the only *Phebalium* on Kangaroo Island were referred tentatively to *P. hillebrandii* J.H. Willis by Wilson (1970) and by Armstrong & Telford (1986); their status as a distinct endemic species close to *P. brachyphyllum* Benth. was first suggested by Davies (1986). The rarity of this species is demonstrated by the absence of any herbarium collections prior to 1952. No *Phebalium* other than *P. pungens* (= *Eriostemon pungens*) was listed for Kangaroo Island by Cleland and Black (1927; 1941; 1952), and Wilson (1970) had seen only one collection.

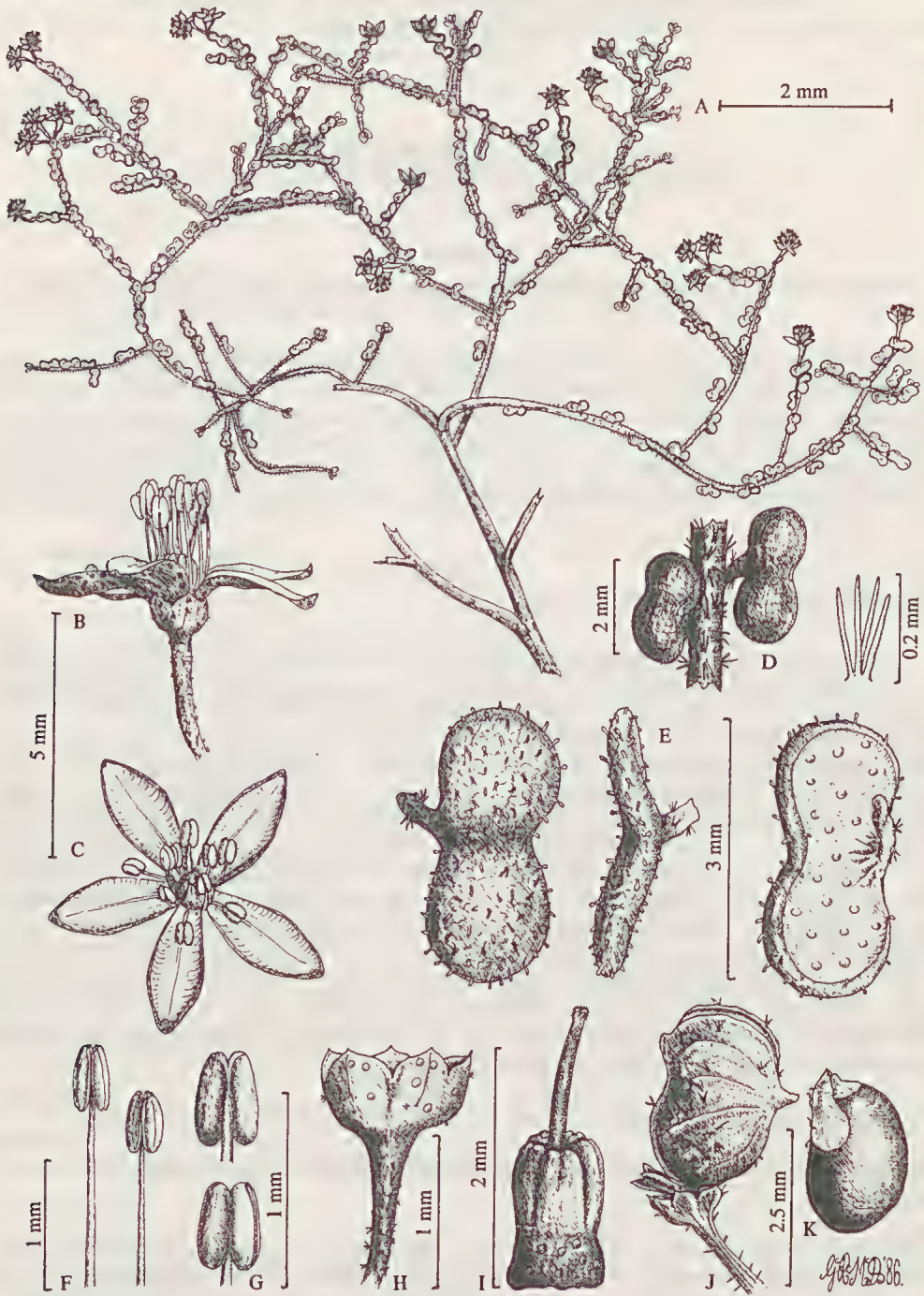
Phebalium equestre D.A. Cooke, sp. nov.

Frutex nanus diffusus virgatus ad 30 cm altus. *Caules* repetite divaricati; ramuli graciles laeves, virides vel rubescentes, pilis stellatis c. 0.2 mm longis pubescentes. *Folia* brevissime petiolata, patentia, ephippioidea, transverse oblonga cordata 1-3.5 mm longa 1.8-4 mm lata, subcoriacea glandulis depressis punctata, supra scabra, subtus glabra, marginibus integris recurvis, apicibus obtusis decurvis ut videtur retusis. *Flores* terminales solitariae vel 2-3 cymam umbelliformem sessilem formantes, in pedicellis 2-4 mm longis rubentibus infime bibracteolatis; alabastra obovoidea obtusa 2.3-3 mm longa rosea. *Calyx* turbinatus sparsim glandulosus lobis transverse triangularibus c. 0.3 mm longis. *Petala* anguste elliptica 2.5-3.5 mm longa glabra, extra rosea valdiore apicem versus, intra alba, apicibus acutis inflexis, in aestivatione valvata. *Stamina* 10 erecta biseriata, ea petalis alternantia eis subaequantia, ea petalis opposita eis breviora; filamenta teretia glabra; antherae versatiles oblongae cordatae retusae c. 0.5 mm longae, sine glandula apicale, luteolae raro roseoinctae. *Gynobasis* cylindrica c. 0.5 mm alta glandulosa vinacea. *Ovarium* 0.8-1 mm altum vinaceum carpellis 4-5 obtusis; stylus 1-1.3 mm longus. *Coccus* patens c. 3 mm longus minute apiculatus sparsim stellato-pilosus. *Semen* ovoideo-reniforme c. 2.5 mm longum laeve fuscum exarillatum, placenta persistenti postremo membranacea. (Fig. 1).

Type: Three Chain Road, Kangaroo Island, 3.x.1986, B.M. Overton 435 (Holotype: AD).

Etymology: Latin *equester*, belonging to cavalry or to horsemen; in reference to the saddle-shaped leaves.

Virgate dwarf spreading shrub to 30 cm high. *Stems* repeatedly divaricate-branched; branchlets slender, smooth, green or becoming reddish, pubescent with stellate hairs c. 0.2 mm long. *Leaves* very shortly petiolate, patent, saddle-shaped, transversely oblong, cordate, 1-3.5 mm long, 1.8-4 mm wide, subcoriaceous, dotted with depressed glands, scabrous above, glabrous below; margins entire, recurved; apices obtuse, decurved, appearing retuse. *Flowers* terminal, solitary or 2-3 forming an umbel-like sessile cyme; pedicels 2-4 mm long, reddish,



Phebalium equestre A, flowering branch; B, flower in lateral view; C, flower from above; D, branchlet and detail of stellate hairs of branchlet; E, leaf in adaxial, apical and abaxial views; F, stamens of outer and inner series; G, anther in dorsal and ventral views; H, calyx; I, ovary with gynobase and style; J, ripe coccus; K, seed. Drawn from holotype and from cultivated material.

with 2 bracteoles at the base; upopened flowers obovoid, obtuse, 2.3-3 mm long, pink. *Calyx* turbinate, sparsely glandular, with transversely triangular lobes c. 0.3 mm long. *Petals* valvate, narrowly elliptic, 2.5-3.5 mm long, glabrous, externally pink deeper towards the apex, internally white; apices acute, inflexed. *Stamens* 10, erect, biseriate, those alternating with the petals subequal to them, those opposite the petals shorter; filaments terete, glabrous; anthers versatile, oblong, cordate, retuse, c. 0.5 mm long, lacking an apical gland, pale yellow rarely tinted pink. *Gynobase* cylindrical, c. 0.5 mm high, glandular, wine-red. *Ovary* 0.8-1 mm high, with 4-5 obtuse carpels, wine-red; style 1-1.3 mm long. *Coccus* patent, c. 3 mm long, minutely apiculate, sparsely stellate-pubescent. *Seed* ovoid-reniform, c. 2.5 mm long, smooth, fuscous; aril absent; placenta persistent, ultimately membranous.

P. equestre is restricted to the Hundred of Haines, Kangaroo Island. It occurs mainly on sandy soils in *Eucalyptus diversifolia* mallee, often associated with *E. cosmophylla* and *Melaleuca uncinata*. It also extends to lateritic soil and *E. cneorifolia* mallee (Davies, pers. comm.). These habitats have largely been cleared and the remaining *Phebalium* populations are restricted to road verges and small patches of native vegetation subject to stock grazing. Flowering occurs in August to October.

Specimens examined

SOUTH AUSTRALIA: c. 200 m down road to Salt Lakes from intersection of Penneshaw-Kingscote road and American River road, 4.vi.1984, R. Davies 562 (AD); American River, 22.x.1974, N. Gemmell 328 (AD 97617349); Three Chain Road, 3.ix.1984, K.C. Holliday s.n. (AD 98433148); road joining Kingscote-Penneshaw road to South Coast road, G.Jackson 328 (AD 96347015); Salt Lakes road, 7.ix.1965, G. Jackson 444 (AD 96548007; MEL); Kangaroo Island, 14.vii.1952, T.R.N. Lothian s.n. (AD 96429021); Seal Bay road turnoff, 6.vii.1977, M.D. Moore s.n. (AD 97838007); Three Chain Road, 21.ix.1985. B.M. Overton 382 (AD 98624078).

Phebalium equestre is placed in the section *Leionema* (F. Muell.) Benth. on the basis of its stellate vestiture, valvate petals, anthers without apical glands and the persistence of the placental endocarp on the seed. It differs from the closely related *P. brachyphyllum* in being smaller in all measurements with a diffuse divaricate habit, a characteristic leaf shape and fewer flowers in the inflorescence; these characters are maintained in cultivated specimens. It differs further from *P. bilobum* Lindley and *P. hillebrandii* in having leaves which are broader than they are long with entire apices and upper surfaces scabrous with rigid simple papillae.

Anther colour, used in the key of Armstrong & Telford (1986), does not appear to be a useful character in this species, varying from yellow to pale pink on the same plant. The carpel number may be 5 as in *P. brachyphyllum* or reduced to 4 as in *P. bilobum* and *P. hillebrandii*. At anthesis the carpels are obtuse as in *P. brachyphyllum*; the apiculum which develops on the fruiting carpel may be homologous to that observed in flowers of *P. hillebrandii* (Wilson, 1971) but appearing later in development.

Acknowledgements

Thanks are due to the staff of the State Herbarium, Adelaide where this paper was prepared and especially to Mr G.R.M. Dashorst for the illustration.

References

- Armstrong, J.A. & Telford, I.R. (1986). Rutaceae. In Jessop, J.P. & Toelken, H.R. (eds) "Flora of South Australia" 4th edn. Part 2. (Govt Printer: Adelaide).
- Cleland, J.B. & Black, J.M. (1927). An enumeration of the vascular plants of Kangaroo Island. *Trans. R. Soc. S. Aust.* 51: 24-61.
- Cleland, J.B. & Black, J.M. (1941). An enumeration of the vascular plants of Kangaroo Island: Additions and corrections. *Trans. R. Soc. S. Aust.* 65: 244-248.

- Cleland, J.B. & Black, J.M. (1952). An enumeration of the vascular plants of Kangaroo Island: Second list of additions and corrections. *Trans R. Soc. S. Aust.* 75: 22-24.
- Davies, R.J-P. (1986). "Threatened Plant Species of the Mount Lofty Ranges and Kangaroo Island Regions of South Australia". (Conservation Council of South Australia Inc.: Adelaide).
- Wilson, P.G. (1970). A taxonomic revision of the genera *Crowea*, *Eriostemon* and *Phebalium* (Rutaceae). *Nuytsia* 1: 3-155.